

WHAT IS CLAIMED IS

- 1 1. A method for updating timing information in a wireless
2 communication network, comprising:
3 detecting, at a mobile unit, signal data containing accurate timing
4 information, wherein said mobile unit is in an area serviced by a base
5 station;
6 deriving accurate timing information from said signal data;
7 generating association data associating said accurate timing
8 information with base station timing information maintained by said base
9 station; and
10 updating network timing information for said base station using said
11 association data.
- 1 2. The method of claim 1, wherein said network timing information is
2 updated using timing information received from a plurality of mobile units in
3 said area.
- 1 3. The method of claim 1 further comprising:
2 updating network timing information for a plurality of base stations in
3 said wireless communication network.
- 1 4. The method of claim 3, further comprising:
2 forwarding portions of said network timing information to said
3 plurality of base stations in said wireless communication network.
- 1 5. The method of claim 1, wherein said signal data is global positioning
2 satellite (GPS) signal data.

6. The method of claim 5, wherein said detecting signal data containing accurate timing information comprises:

receiving, via a GPS antenna, GPS signal data.

1 7. The method of claim 6, wherein said deriving accurate timing
2 information from said signal data comprises:

3 deriving GPS timing information from said GPS signal data in said
4 mobile unit.

1 8. The method of claim 6, wherein said deriving accurate timing
2 information from said signal data comprises:

3 deriving GPS timing information from said GPS signal data at a
4 central network authority.

1 9. The method of claim 7, wherein said generating association data
2 further comprises:

3 identifying the base station time at which said GPS signal data is
4 detected;

5 forwarding said base station time along with said GPS timing
6 information to a central network authority; and

7 generating said association data at a central network authority.

1 10. The method of claim 8, wherein said generating association data
2 further comprises:

3 identifying the base station time at which said GPS signal data is
4 detected;

5 forwarding said base station time along with said GPS signal data to
6 said central network authority; and

7 generating said association data at said central network authority.

- 1 11. The method of claim 1, wherein said generating association data is
2 performed at said mobile unit, the method further comprising:
3 forwarding said association data to a central network authority.
- 1 12. The method of claim 1, wherein said association data is stored at a
2 central network authority.
- 1 13. The method of claim 1, wherein said association data is used to
2 update data at a central network authority.
- 1 14. The method of claim 1, further comprising:
2 repeating said generating and updating each time a mobile unit in
3 said network detects signal data containing accurate timing information.
- 1 15. The method of claim 1, further comprising:
2 repeating said generating and updating each time a mobile unit in
3 said network is instructed to detect signal data containing accurate timing
4 information.
- 1 16. The method of claim 1, further comprising:
2 forwarding a portion of said network timing information to a second
3 mobile unit.
- 1 17. A network timing system, comprising:
2 a receiver at a mobile unit configured to detect signal data
3 containing accurate timing information, wherein said mobile unit is in an
4 area serviced by a base station;
5 a processing device configured to derive accurate timing information
6 from said signal data; and
7 a central network authority, coupled to receive said accurate timing
8 information and configured to generate association data associating said

9 accurate timing information with base station timing information maintained
10 by said base station, and to provide said accurate timing information and
11 association data to said base station to provide updated network timing at
12 said base station.

1 18. The network timing system of claim 17, further comprising:
2 a plurality of mobile units in said area, each having a receiver
3 configured to detect signal data containing accurate timing information.

1 19. The network timing system of claim 17, wherein said processing
2 device to derive accurate timing information is located at one of said mobile
3 unit and said central network authority.

1 20. The network timing system of claim 17, wherein said further
2 comprising a plurality of mobile units in a plurality of areas, each area
3 serviced by at least one base station, wherein said central network
4 authority is configured to provide updated network timing at each of said
5 base stations.

1 21. The network timing system of claim 20, wherein said central network
2 authority is configured to provide updated network timing information to
3 one or more of said plurality of mobile units.

1 22. The network timing system of claim 20, further comprising at least
2 one mobile unit in said area configured without a receiver, wherein said
3 central network authority is configured to provide updated network timing
4 information to said at least one mobile unit.

1 23. The network timing system of claim 17, wherein said signal data is
2 GPS signal data and wherein said processing device, located at one of

3 said mobile unit and said central network authority, is configured to derive
4 GPS timing information from said GPS signal data.

1 24. The network timing system of claim 23, wherein said association
2 data comprises:

3 information identifying said base station;
4 information identifying the base station time at which said GPS
5 signal data is detected; and
6 said GPS timing information.

1 25. A network timing method in a network including a central network
2 authority and a plurality of areas each serviced by at least one base
3 station, comprising:

4 detecting, at a mobile unit in one of said areas, GPS signal data;
5 deriving, at one of said mobile unit and said central network
6 authority, GPS timing information from said GPS signal data;
7 associating said GPS timing information with base station timing
8 information from said base station in said area; and
9 updating network timing information for said base station using said
10 GPS timing information and said base station timing information.